STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF WASTE AND HAZARDOUS SUBSTANCES
391 LUKENS DRIVE
NEW CASTLE, DELAWARE 19720-2774

SITE INVESTIGATION &
RESTORATION SECTION

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April 24, 2014

Ex. 4 CBI

Ten Bears Environmental, L.L.C
1080 S. Chapel Street
P.O. Box 9711
Newark, DE 19714

RE: Comments to Remedial Investigation Report
Procino Plating Facility (DE-0344)

Dear Mr. and Mrs. Procino:

The Department of Natural Resources and Environmental Control – Site Investigation and Restoration Section (DNREC-SIRS) has received and reviewed the Remedial Investigation Report submitted for the referenced site on August 8, 2013. The report is incomplete, and cannot be approved as submitted. DNREC-SIRS is providing the following comments to the Remedial Investigation Report. Please collect additional information as discussed below, address comments provided, and resubmit an updated Remedial Investigation Report.

Overall Comments:

Per Section 9.4.1.1 of Delaware's Hazardous Substance Cleanup Act Regulations, "The purpose of the remedial investigation includes characterizing the nature and extent of the release . . . of hazardous substances." Based upon the data presented in this report, the extent of chromium contamination in groundwater has not been fully delineated to the east-southeast of the apparent source area. Chromium was detected in monitoring well MW-10 at a concentration of 193 micrograms per liter (ug/L) in May 2013. Full characterization of the extent of contamination is necessary in order to adequately evaluate remedial options for groundwater cleanup. For this reason, additional investigation work is necessary at the site.

The *Assessment of Site-Related Human Health Risks* section of the document (Section 5.0) needs to be re-written assuming that a complete groundwater exposure pathway exists for of the neighborhood southwest of the site and the Town of Blades (since the site is located in the wellhead protection area for the Town of Blades wells). Sections 6.0, 7.0 and 8.0 will also need to be revised based upon new information and other comments presented below.

Specific Comments:

Table of Contents – Please include a table of contents for the report.

Executive Summary, page i, 5th paragraph – it is stated that although cyanide was reported in a domestic well sample, it was never detected in any of the Procino Plating Site samples. Please note

that cyanide is commonly used in plating operations, and that cyanide treatment tanks were identified at the site in 2011, thus indicating that the source of cyanide could potentially be former operations at the subject site.

Executive Summary, page ii, 1st paragraph – DNREC is in agreement that the groundwater flow direction has been shown to be to the south/southwest based upon data collected. However this alone does not justify the statement that the chromium in groundwater isn't a threat to the Town of Blades public water supply. Information obtained from DNREC's Division of Water indicates that the Procino Plating facility is within the wellhead protection area of the Town of Blades public water supply wells (as shown on Figure 6. As a result, DNREC contends that the potential exists for site related chromium contamination to be captured by the currently operating Town of Blades water supply wells.

Executive Summary, page ii, 2nd paragraph – Due to the proximity of the Peninsula Plating site adjacent to the Town of Blades water supply wells, it is unlikely that the cyanide detected in the domestic well is related to that property. Shallow groundwater is being captured by the continuous pumping in the Town's wells. Further, and as stated above, DNREC documented the presence of cyanide treatment tanks at the Procino Plating facility in 2011, thus indicating that the source of cyanide could just as easily be the result of former operations at the subject site.

Executive Summary, page ii, Assessment of Human Health Risk – Only one well has been sampled three times. All other wells with chromium impact have been sampled either once or twice. In fact, one well, MW-10 has only been sampled once and chromium was detected at a concentration almost twice the EPA MCL. That said, DNREC believes it's premature to state that concentrations are trending one way or another. Further, the fact that the contaminant plume lies within the wellhead protection area of the Town of Blades water supply wells means that all of the public water users are potential receptors and thus completes a pathway for the ingestion of groundwater.

Executive Summary, page iii, Remedial Recommendations – Since a complete pathway does exist for ingestion of groundwater at the site (through the Town of Blades water supply wells), and because the full extent of the chromium plume has not been defined, the current Human Health Risk Assessment is not adequate. In addition, without full delineation of the chromium plume, it is inappropriate to presume a remedial approach at this time. If, however, future data indicates that a natural attenuation remedy may be appropriate, then proper sample collection and natural attenuation modeling will be necessary to justify such a remedy.

Page 2, 1st paragraph – Please explain the significance of the future Town of Blades annexation area. Does this mean that public water will be supplied to the neighborhood to the west of the rail line, and if so, what is the timeframe for this to occur ?

Page 4, 1st paragraph – Knowing that cyanide containing plating solutions have been used at the site, along with the presence of the treatment tank and the detection of low levels of cyanide in one private water supply well located less than 150 feet from the Procino Plating site boundary, DNREC contends that cyanide could have been "spilled, disposed or released" from the site in the past.

Page 7, 1st paragraph – Based on information presented in the report, it does not appear that flow between the former Peninsula Plating site and Procino Plating was fully defined. However, DNREC reviewed the 5 year capture for the Town of Blades public water supply wells, which is the basis for the Town of Blades Wellhead Protection Area. Based on the wellhead capture area, it is most likely that groundwater flow in the area of Peninsula Plating is towards the public water supply wells and not towards the Procino Plating facility. Furthermore, the public water supply wells were sampled by Delaware's office of Drinking Water for metals and cyanide at the same time as the 1999 Site Inspection. Cyanide was not detected in the public wells. Chromium was detected at low concentrations of 2.8 and 3.3 micrograms per liter (ug/L), well below the EPA MCL for chromium at
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Page 15, 3rd bullet – based upon the data presented, the range of chromium concentrations in the deepest soil was from 11.6 mg/kg to 199 mg/kg.

Page 15, Section 3.2.3, last paragraph – This paragraph states that "diminishing concentrations were generally observed with depth . . ." Based upon on reported results and Figure 10, chromium concentrations increased with depth at each location except HA-6. Please revise/clarify.

Page 18, Monitor Well Development and Sampling – it is stated in the first paragraph of this section that approximately 500 gallons of groundwater was pumped from the well on May 3, 2012 prior to sampling on May 9, 2012. Where was this development water discharged ? Given the proximity to the chromium source area, observations of "clear" and "odor free" are not sufficient to verify that chromium wasn't present in the development water.

Page 23, Shallow Monitor Well Development and Sampling – Were stabilization parameters collected to ensure that the wells were adequately developed, or was the criteria used simply "visually clear" as noted ? Please clarify.

Page 25, 2nd paragraph – The paragraph states that MW-10 contained chromium at a concentration above the MCL. The following sentence states that "Samples of groundwater collected from shallow wells MW-8, MW-9 and MW-10 located farther to the west…did not contain detectable chromium." Please clarify.

Page 25, 3rd paragraph – The paragraph states that "although not necessarily continuous, …the fine-grained layers create a low permeability impedance". The information presented in the report does not demonstrate a continuous low permeability layer of sufficient thickness to prevent the potential downward migration of chromium in groundwater.

Page 26, Well Depth – The reason for taking split spoon samples was to verify presence and thickness of confining layers, which is important to establish the geologic conditions below the site. Stating that a clayey unit was "interpreted" is not consistent with the approved work plan methodology. Further, for the description of DW-2, the terms "fine grained material" and "clay" are both used to describe the same apparent interval. Please clarify.

Page 28, Summary of Phase I and II RI Findings – This summary fails to note the detected concentration of chromium to the southeast of MW-6, in monitoring well MW-10, at concentrations in excess of the MCL. Additional well installation and groundwater sampling is necessary to define the lateral and vertical extent of chromium impact to the east-southeast of the apparent source area.

Page 29, 3rd paragraph – the information states that a wooden floor was formerly present. It is subsequently stated that there is a concrete slab. When was the concrete slab poured in relation to the suspected release(s) of chromium solution ? This information may help date the release and give some context to contaminant migration.

Page 31, Section 4.4 – There is no discussion of chromium degradation as the section title implies. In addition, there is no discussion of the significance of site conditions as it relates to transformation or degradation of chromium. Since the recommended remedy is based upon attenuation/degradation, this type of information is important to present.

Page 33, Onsite Encountered Subsurface Stratigraphic Units – Please clarify the last sentence.

Page 34, Vertical Aquifer Limits, 2nd paragraph – This is not a clear argument on vertical migration. The first paragraph specifies local confining layers, then goes on in the second paragraph to discuss "hydrologic interconnection" and "leaky" clay beds. Please base statements in the report on the data that has been collected. If the information indicates that there is interconnection between the shallow and deeper zones assessed as part of this RI, then it should be stated consistently throughout the report.

Page 35, Shallow Groundwater Flow – The plume still has not been defined in all directions. One interpretation of the data *could* show a plume migration in a southeasterly direction. Additional data needs to be collected to confirm the conceptual site model that has been developed.

Page 36, Fate and Transport Summary – it is stated that "no additional releases of chromium from the tanks will occur." Please specify that this is true only in the location of the former tanks. Chrome plating still occurs at the site, therefore chromium plating solutions are still utilized at the facility, and thus could potentially be released in the future.

Page 40, 2nd paragraph – The public water provided by the Town of Blades is groundwater. Further, the site is within the wellhead protection area for the Town of Blades wells. Therefore, the groundwater beneath the site has the potential to be used for drinking water. This completes an exposure pathway.

Page 40, 3rd paragraph – It is stated that the neighborhood is to the "west-southwest" of the site, and that the groundwater flow is the "southwest–to-south." The same paragraph indicates that the neighborhood does not lie in a downgradient direction of the site. Slight changes in groundwater flow direction are common, especially in areas near water bodies, and during different seasons. Since both "west-southwest" and "southwest-south" have components of southwesterly flow, it follows that the neighborhood southwest of the site is a potential receptor for groundwater contamination.

Page 44, Section 6.2.2 Groundwater Treatment – Groundwater treatment must be considered since receptors exist and a complete exposure pathway exists.

Page 44, Section 6.2.3 Institutional Controls – If a Groundwater Management Zone is established as part of a remedy, then a plan needs to be established for its removal. This means that either an active groundwater treatment needs to be initiated, or modeling must be completed to predict the natural attenuation timeframe for site contaminants. Please keep this in mind as remedial actions are evaluated prior to re-submittal of the Remedial Investigation Report.

Page 45, Section 7, Interim Actions – Please provide timeframes when these activities occurred, as they were not DNREC-SIRS approved Interim Actions.

Page 49, 2nd bullet – Statements should not be made based upon only the "most recent" groundwater flow direction since season variations are possible, and since variations have been measured at this site. Further, it is stated that "most" of the domestic supply wells are screened below low permeability silt/clay beds in a "semi-confined" portion of the Columbia Aquifer. All of this together indicates that the potential exists for future impacts to domestic water supplies (i.e. a complete exposure pathway).

Figures – Figures 1, 7, 12, 14, 16, 19, and 21 do not have scales. Please provide.

Figure 19 – The data indicate that the groundwater flow lines may bend, indicating a southwesterly flow in the southern portion of the study area. Please look specifically at MW-9 and MW-12 elevations. Please re-visit the groundwater elevation contour map and associated data interpretation.

Please provide a workplan to DNREC-SIRS indicating how and where additional data will be collected to meet the requirements of a Remedial Investigation per DNREC HSCA Regulations. DNREC is also willing to meet at any time to discuss future actions at the site.

If you have any questions, pleases contact me via email at john.cargill@state.de.us or by phone at 302.395.2622.

Sincerely,

John G. Cargill, IV, P.G.
DNREC-SIRS Project Officer

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